Appl. No. 09/913,840
Amdt. dated February 18, 2005
Reply to Office Action of November 19, 2004

PATENT

Listing of Claims:

The following listing of claims is provided for the convenience of the Examiner. No amendments to the claims are made in this paper.

1. (Original) An OFDM receiver, comprising:

a received signal processor, for demodulating, A-D converting, and down-sampling received signals to form a time domain digital signal vector;

an equalizer, having at least a feedback section and having a plurality of tap coefficients, the equalizer acting on the time domain digital signal vector to form a filtered time domain sequence;

a Fast Fourier Transform processor, for acting on the filtered time domain sequence to form a frequency domain vector;

an output device, for converting the frequency domain vector into an output data signal;

an inverse Fast Fourier Transform processor, for acting on the output data signal to form an estimate of the transmitted sequence;

wherein the estimate of the transmitted sequence is supplied as an input to the equalizer to enable decision directed adaptation of the tap coefficients thereof, and further as an input to the feedback section of the equalizer.

2. (Original) An OFDM receiver as claimed in claim 1, further comprising:

a guard extraction device, for extracting any guard sequence from the filtered time domain sequence before processing by the Fast Fourier Transform processor; and

a guard insertion device, for inserting a guard interval, corresponding to that removed by the guard extraction device, into the estimate of the transmitted sequence supplied by the inverse Fast Fourier Transform processor.

3. (Original) An OFDM receiver as claimed in claim 1, further comprising:

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a channel estimator, for compensating the frequency domain vector to produce a compensated frequency domain vector.

4. (Original) An OFDM receiver as claimed in claim 1, wherein the output device comprises means for exploiting and cancelling any error control strategies applied in a transmitter of the received signals, and further comprising:

means for reapplying to the output data signal any error control strategies cancelled in the output device.

5. (Original) An OFDM receiver as claimed in claim 4, wherein the output device comprises means for deinterleaving the compensated frequency domain vector.

6. (Original) An OFDM receiver as claimed in claim 4, wherein the output device comprises means for demapping the compensated frequency domain vector.

7. (Withdrawn) An adaptive decision feedback equalizer, comprising:

a first input, for a received signal comprising a plurality of symbols, the symbols representing an OFDM signal, each OFDM symbol comprising a plurality of subsymbols per OFDM symbol period;

a feedforward stage, comprising a first number of taps and corresponding tap coefficients;

a feedback stage, comprising a second number of taps and corresponding tap coefficients;

a first buffer, for storing past symbols beyond symbols present in the feedforward stage;

a second buffer, for storing past symbols beyond symbols present in the feedback stage;

a correction algorithm processor, for updating tap coefficients of taps in the feedback stage and the feedforward stage at intervals of the OFDM symbol period.

8. (Withdrawn) A method of adapting coefficients of an adaptive equalizer, the equalizer comprising:

a first input, for a received signal comprising a plurality of symbols, the symbols representing an OFDM signal, each OFDM symbol comprising a plurality of subsymbols per OFDM symbol period;

a second input, for receiving a feedback signal comprising an estimate of a transmitted signal;

a feedforward stage, comprising a first number of taps and corresponding tap coefficients;

a feedback stage, comprising a second number of taps and corresponding tap coefficients;

a first buffer, for storing past symbols beyond symbols present in the feedforward stage;

a second buffer, for storing past symbols beyond symbols present in the feedback stage; and

a correction algorithm processor, for updating tap coefficients of taps in the feedback stage and the feedforward stage at intervals of the OFDM symbol period, the method comprising:

supplying the feedback signal to the second input once per symbol period;

calculating required corrections to the tap coefficients corresponding to intervals of the subsymbol period; and

updating the tap coefficients of the taps at intervals of the OFDM symbol period based on all calculated corrections obtained during each said period.

9. (Withdrawn) A method as claimed in claim 8, further comprising outputting an equalized signal at intervals of the symbol period.